

Poster presentation

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Choroid plexus differences in rats with spontaneous and induced hydrocephalus

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Background

In hydrocephalus alterations of the brain structures have been described, among them: cortical displacement, cerebrospinal fluid composition alterations and circumventricular structure variations are described and many of these variations could be cause or consequences of the hydrocephalus. The protein p73 is a member of a family of transcription factors and equilibrium between p73 isoforms is necessary for the normal development of the brain and the maturation of the neuroepithelium. On the other hand, the p73 deficiency produces many alterations in the brain that include hydrocephalus. The purpose of this work was to analyze the alteration of the choroid plexus (CP) in different types of hydrocephalus.

Materials and methods

Ten control male rats and ten male rats with spontaneous and induced hydrocephalus were used. The control group was composed of rats sacrificed at 26 and 50 weeks of age and the hydrocephalic rats (6 kaolin-induced hydrocephalus, 4 spontaneous hydrocephalus) rats were sacrificed at the same ages as control. The rats were fixed by vascular perfusion with Bouin's fluid, dehydrated and embedded in paraffin under standard conditions. Brains were cut into four serial coronal sections. One of the serial coronal

sections was stained by the Klüver-Barrera method. The other sections were immunohistochemically processed using anti-p73 and anti-transferrin (TTR) as primary antibodies.

Results

We found, in the induced hydrocephalus, structural alterations and a decrease in the p73 immunoreactive material when compared to control group. In spontaneous hydrocephalus we did not find great structural variations of the CP, however changes in the intensity of anti-p73 reaction were found with respect to the control. The TTR expression varied with the hydrocephalus, in control rats it was clearly observed in the CP and was increased in spontaneous hydrocephalus.

Conclusion

The obstructive hydrocephalus causes CP morphology alterations and a decrease in the p73 and expression, contrarily the CP, significant structural variations in the spontaneous hydrocephalus were not found. Furthermore, some changes in the intensity of anti-p73 and anti-TTR were found and these variations could precede the onset of the hydrocephalus.